DONLIN GOLD PROJECT

18 May 2015

EPA Region 10 Mining Team

Ken Marcy, Mining Coordinator

Mardi Jost – NCPA

Cindi Godsey – NPDES, Surface Waters

Herman Wong – Air Modeling

Zach Hedgpeth – Air Emissions/Engineering

Matthew LaCroix – Wetlands/404

Chris Eaton – Mercury, Contaminants

Lorraine Edmond – Groundwater, Hydrology

Tami Fordham – Tribal Policy Advisor

Endre Szalay, ORC

Alexis Fidis, ORC – Air/Stationary Source

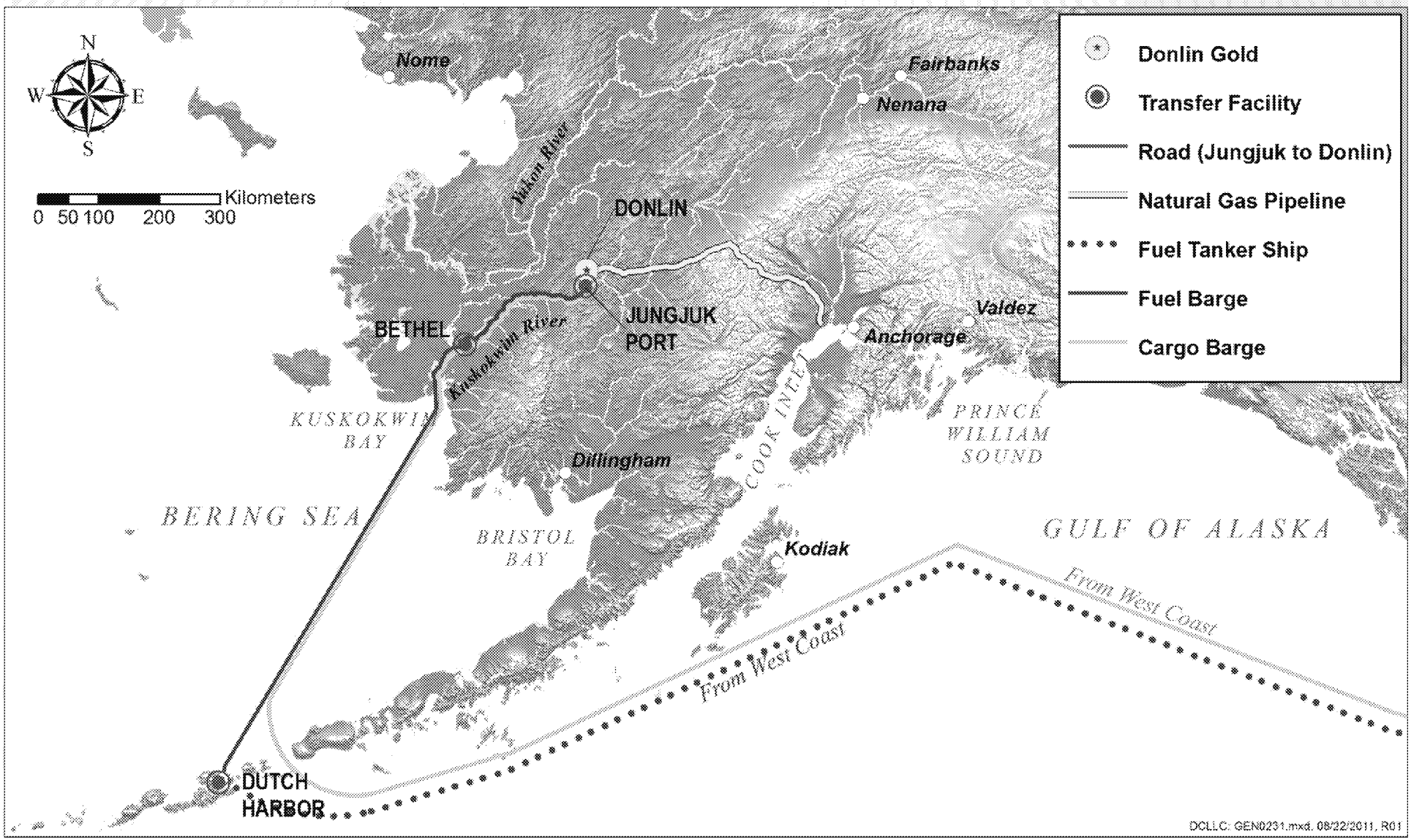
Skills Market Place – Brent Truskowski, R8

KerryAnn Weaver, R5

NatureServe Contract

PROJECT COMPONENTS

■ Mine ■ Transportation Infrastructure ■ Pipeline ■



STAKEHOLDERS

DONLIN GOLD LLC

- Barrick Gold US, Inc
- NovaGold Resources, Inc

LANDOWNERS

Mine Site (ANCSA)

- Calista Corp. (subsurface)
- The Kuskokwim Corp. (surface)

Transportation Infrastructure

- Calista, Kuskokwim, State, City of Bethel

Natural Gas Pipeline Right-of-Way

- State of Alaska (66%)
- Federal – BLM (31%)
- Calista Corp. and Cook Inlet (CIRI)

RESIDENTS (Y-K Region)

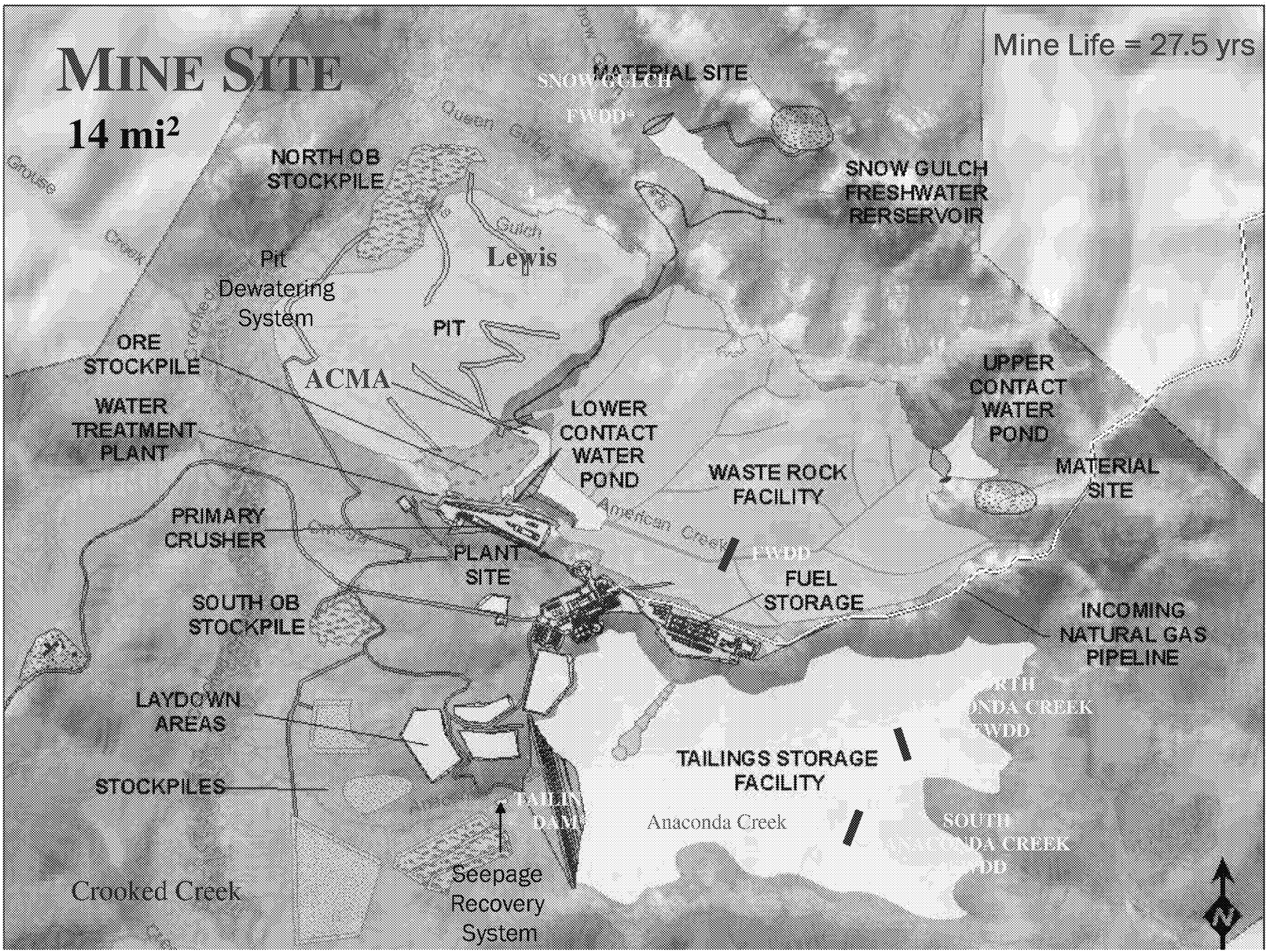
- Alaska Tribes (66)

EIS DEVELOPMENT

- Corps of Engineers – Lead

Cooperating Agencies

- EPA, BLM, PHMSA USFWS
- State – ADNR, ADEC, ADFG
- Tribal Governments (6) Aniak, Crooked Creek Akiak, Chuathbaluk Kwik, Napaimute



NEPA & PSD Air Quality Analysis

- Team:
  - Region 10 (NEPA)
    - Herman Wong, OEA, Meteorology and Dispersion Modeling
    - Zach Hedgpeth, OEA, Emissions and Engineering
    - Alexis Fidis, ORC, Stationary Source Determination
  - State of AK (PSD Permit)
    - Alan Schuler, Dispersion Modeler
    - James Renovatio, Emissions and Engineering
    - Barbara Trost, Meteorology
  - Donlin
    - Nick Enos, Permit Lead
    - Air Sciences, Contractor

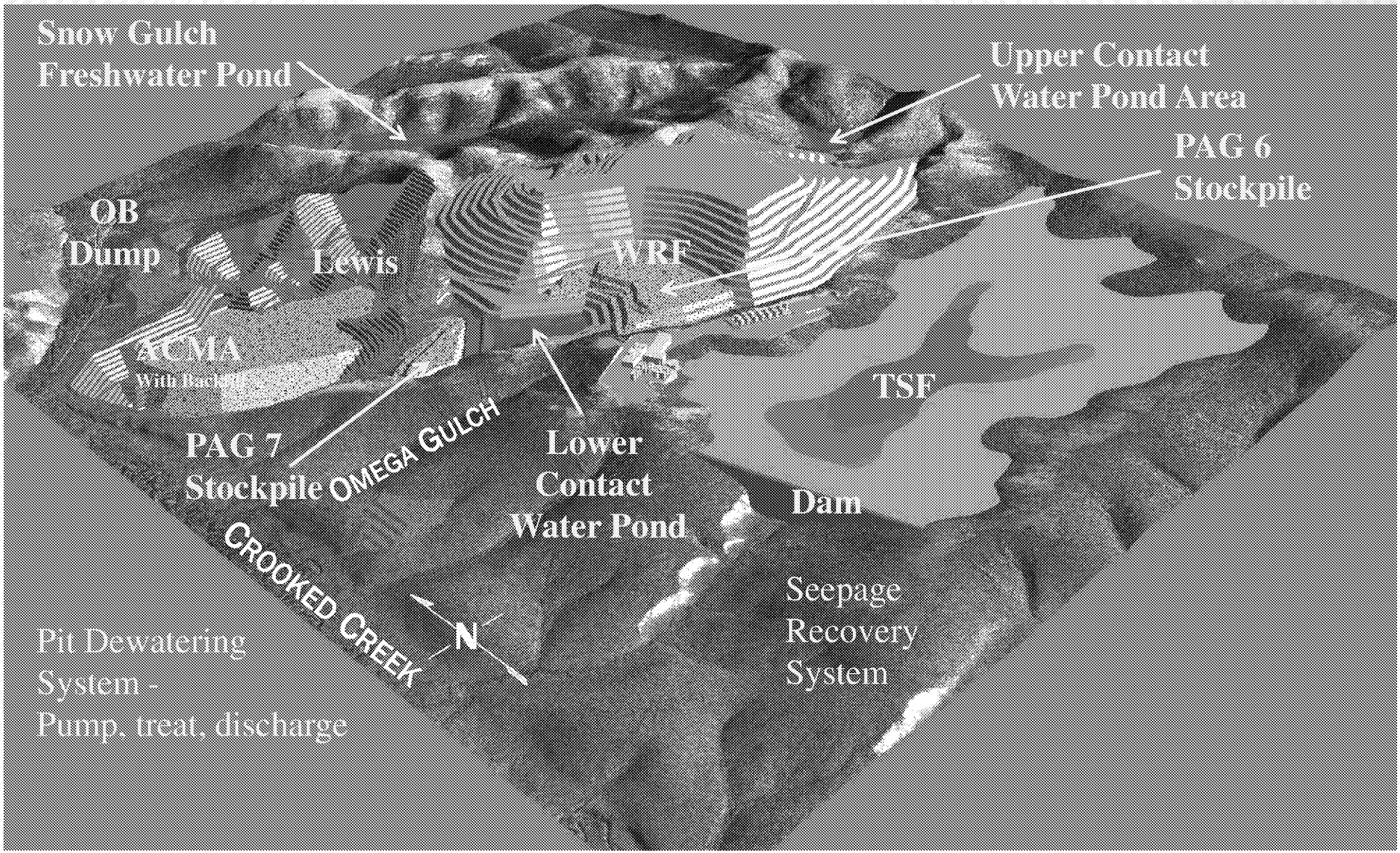
NEPA & PSD Air Quality Analysis

- Region 10 coordinate with NPS and FWS
- Meetings in Anchorage and Seattle
  - Region 10, AK and Donlin Team in Attendance
  - Agree that NEPA and PSD Permit Analyses should be similar
  - Identify, discuss and resolve issues related to PSD Permit
  - Resolve issues consistent with laws, regulations and science
- Over 10 issues were resolved since 2006, some requiring Region 10 approval

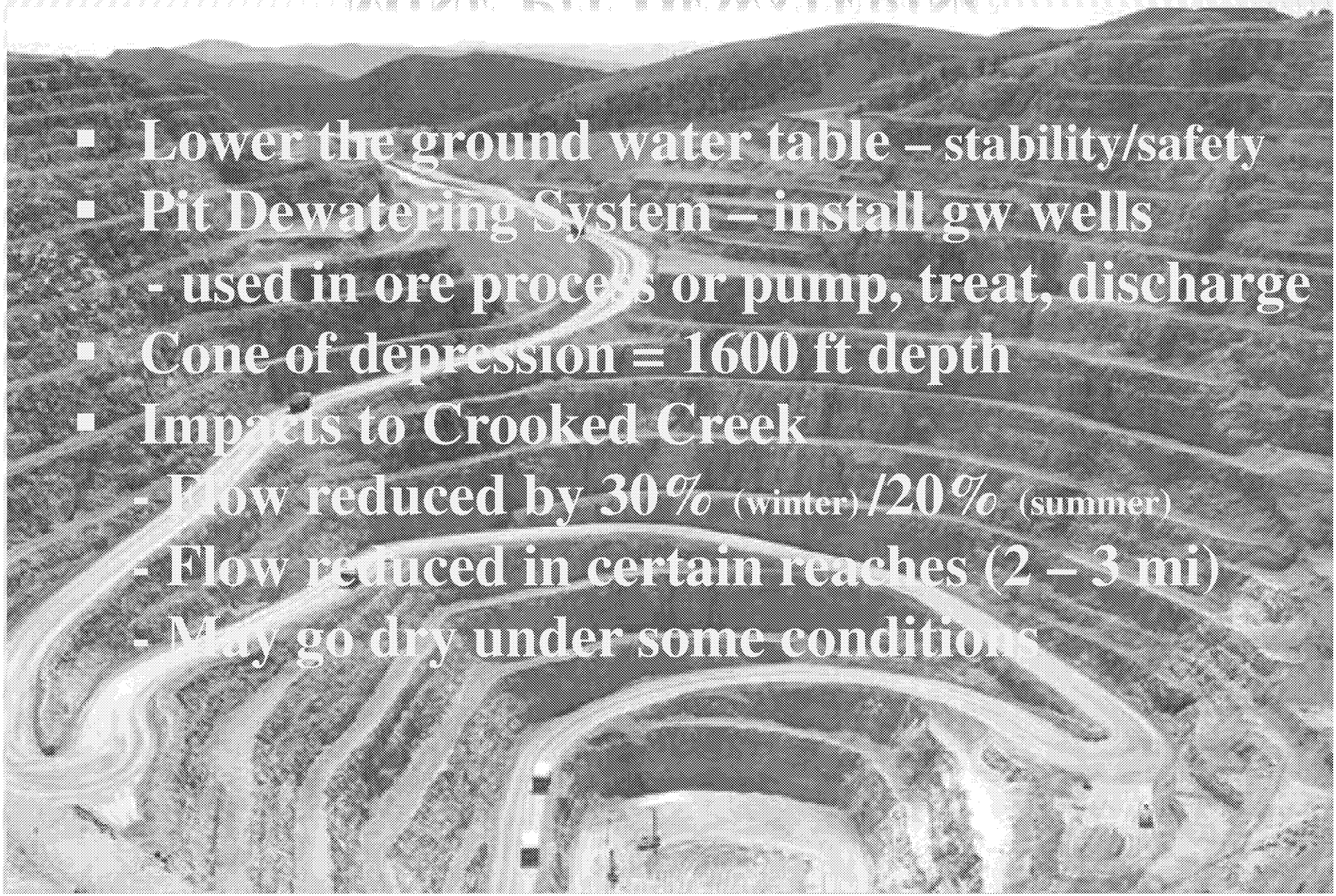
NEPA & PSD Air Quality Analysis

- Outstanding Issue – Low Wind Speed, u_* Beta Option for NAAQS Modeling
  - Approach Region 10 with request to approval use in late summer 2014
  - Model C/H wanted a Section 3.2.2(c), (d) or (e) Demonstration for their Beta Option;
  - Region 10 could not approve because of lack of documentation in the record
  - Donlin Management contacted the Model C/H in late 2014
- Draft Appendix W Release in Mid Summer 2015
- Documentation in docket
- Region 10 should be able to approve

WATER MANAGEMENT

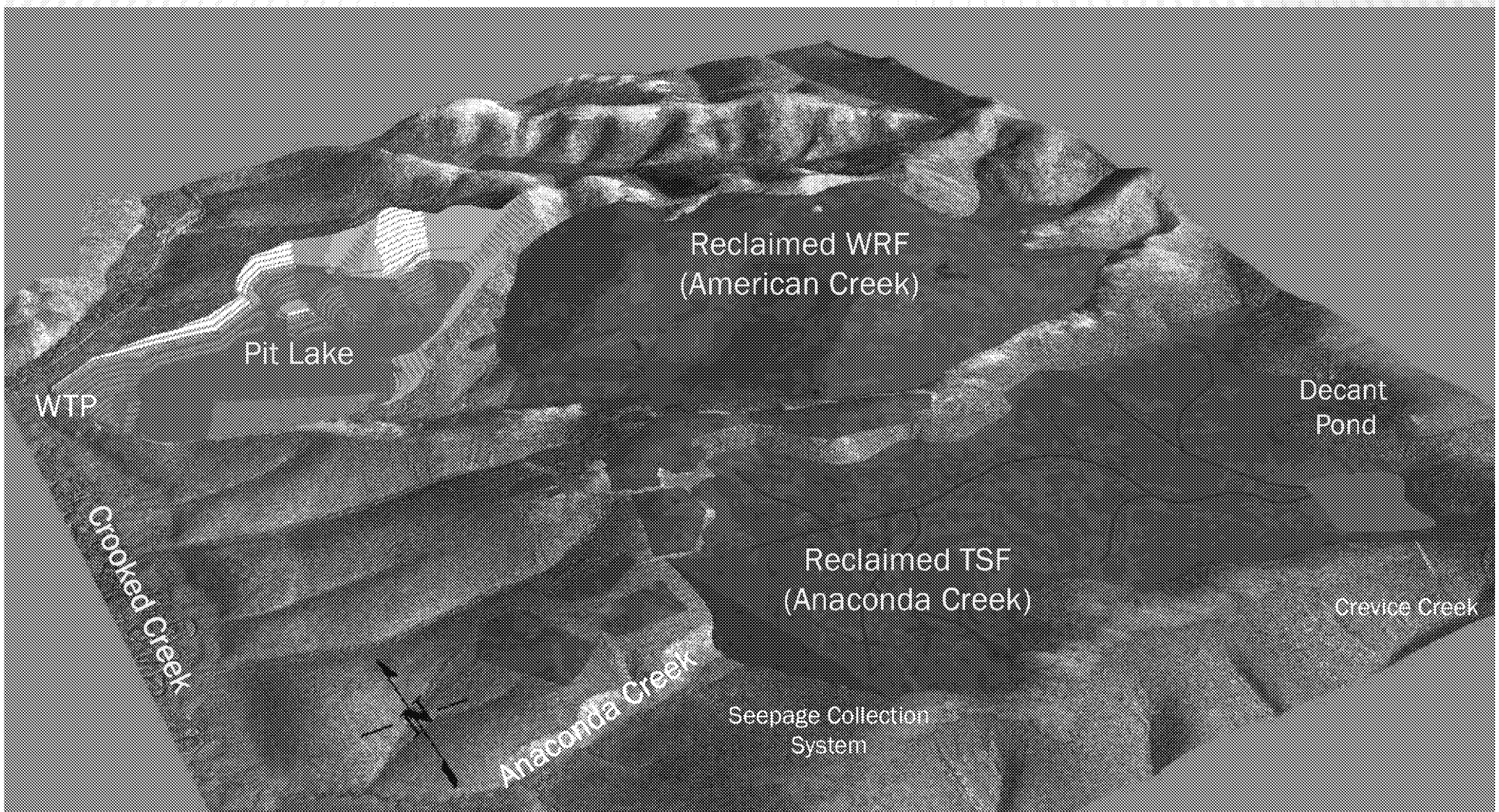


Mine Pit Dewatering

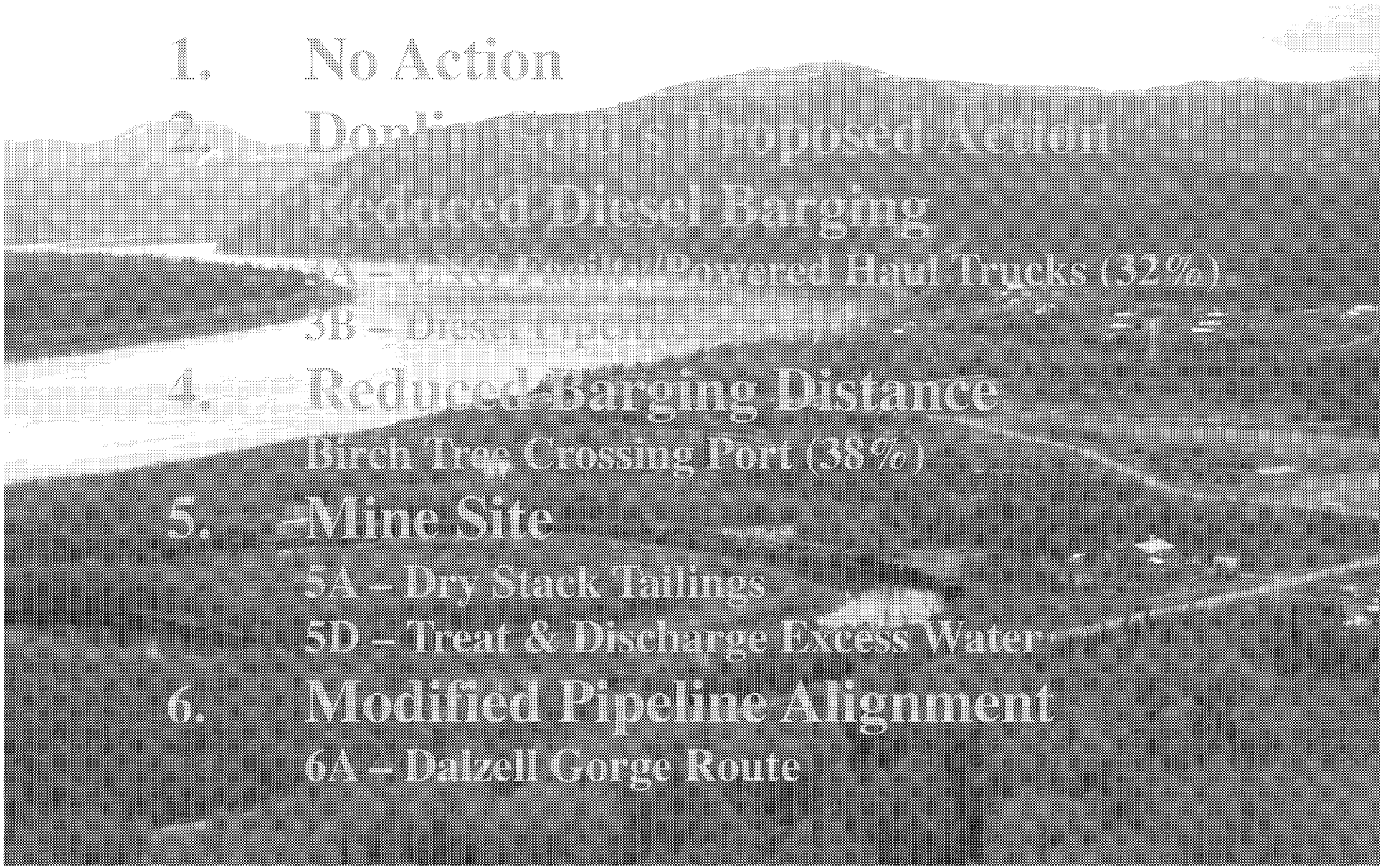


- Lower the ground water table – stability/safety
- Pit Dewatering System – install gw wells
  - used in ore process or pump, treat, discharge
- Cone of depression = 1600 ft depth
- Impacts to Crooked Creek
  - Flow reduced by 30% (winter)/20% (summer)
  - Flow reduced in certain reaches (2 – 3 mi)
  - May go dry under some conditions

RECLAMATION & CLOSURE
Long-Term Water Monitoring

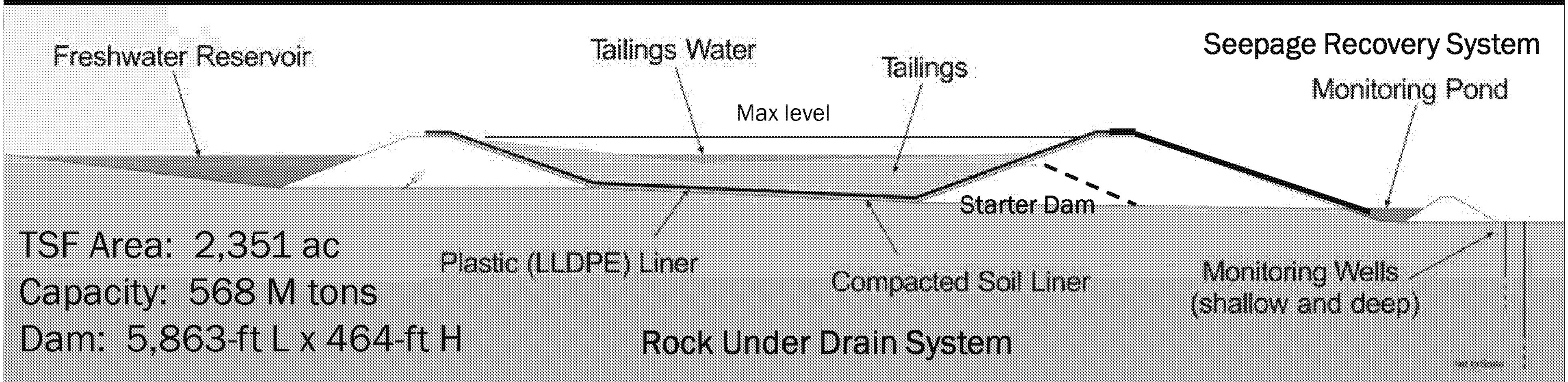


EIS ALTERNATIVES



1. No Action
2. Donlin Gold's Proposed Action
3. Reduced Diesel Barging
   - 3A – LNG-Fueled/Powered Haul Trucks (32%)
   - 3B – Diesel-Fueled Haul Trucks
4. Reduced Barging Distance
   - Birch Tree Crossing Port (38%)
5. Mine Site
   - 5A – Dry Stack Tailings
   - 5D – Treat & Discharge Excess Water
6. Modified Pipeline Alignment
   - 6A – Dalzell Gorge Route

Tailings Storage Facility



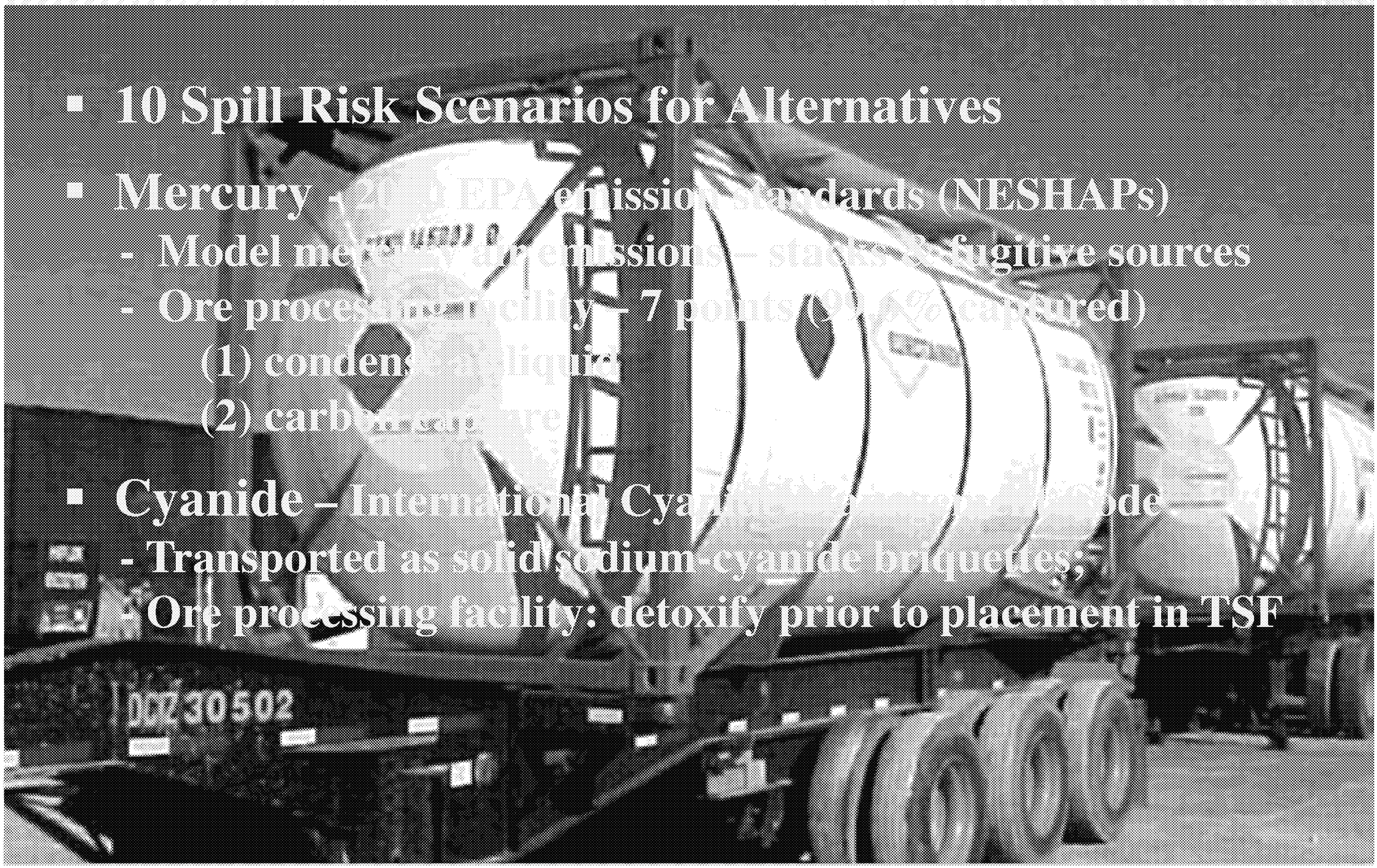
Spill Scenario

- Failure Mode Effects Analysis ([illegible])
- Low probability, high consequence event
- [illegible] contaminated water released

1. Partial breach of the TSF dam & downslope failure
2. Liner [illegible] leads to sinkhole & outflow of tailings

Chemical Management

Mercury, Cyanide, Tailings, Diesel, Natural Gas, LNG



- 10 Spill Risk Scenarios for Alternatives
- Mercury – 20[illegible] EPA emission standards (NESHAPs)
  - Model mercury air emissions – stacks & fugitive sources
  - Ore processing facility – 7 points (99.[illegible]% captured)
    - (1) condense as liquid
    - (2) carbon capture
- Cyanide – International Cyanide Management Code
  - Transported as solid sodium-cyanide briquettes;
  - Ore processing facility: detoxify prior to placement in TSF

Acid Rock Drainage

Categories	Description	Tons	%	Management
NAG	Unlikely to generate ARD	2.8 B	93	WRF
PAG 5	Several decades to onset of ARD	87 M	3	Blended with NAG in WRF
PAG 6	Less than a decade to onset of ARD	135 M	4	Minimize contact with water; Place in isolated cells in WRF Pit backfill at closure*
PAG 7	Less than a few years to onset of ARD	2.6 M	<0.1	Low grade ore stockpile Pit backfill at closure*
	Total	3.0 B		

*At closure, the Open Pit will be the Pit Lake, which will submerge the waste rock.

KUSKOKWIM RIVER

River Barge Traffic (110 days – June to October)

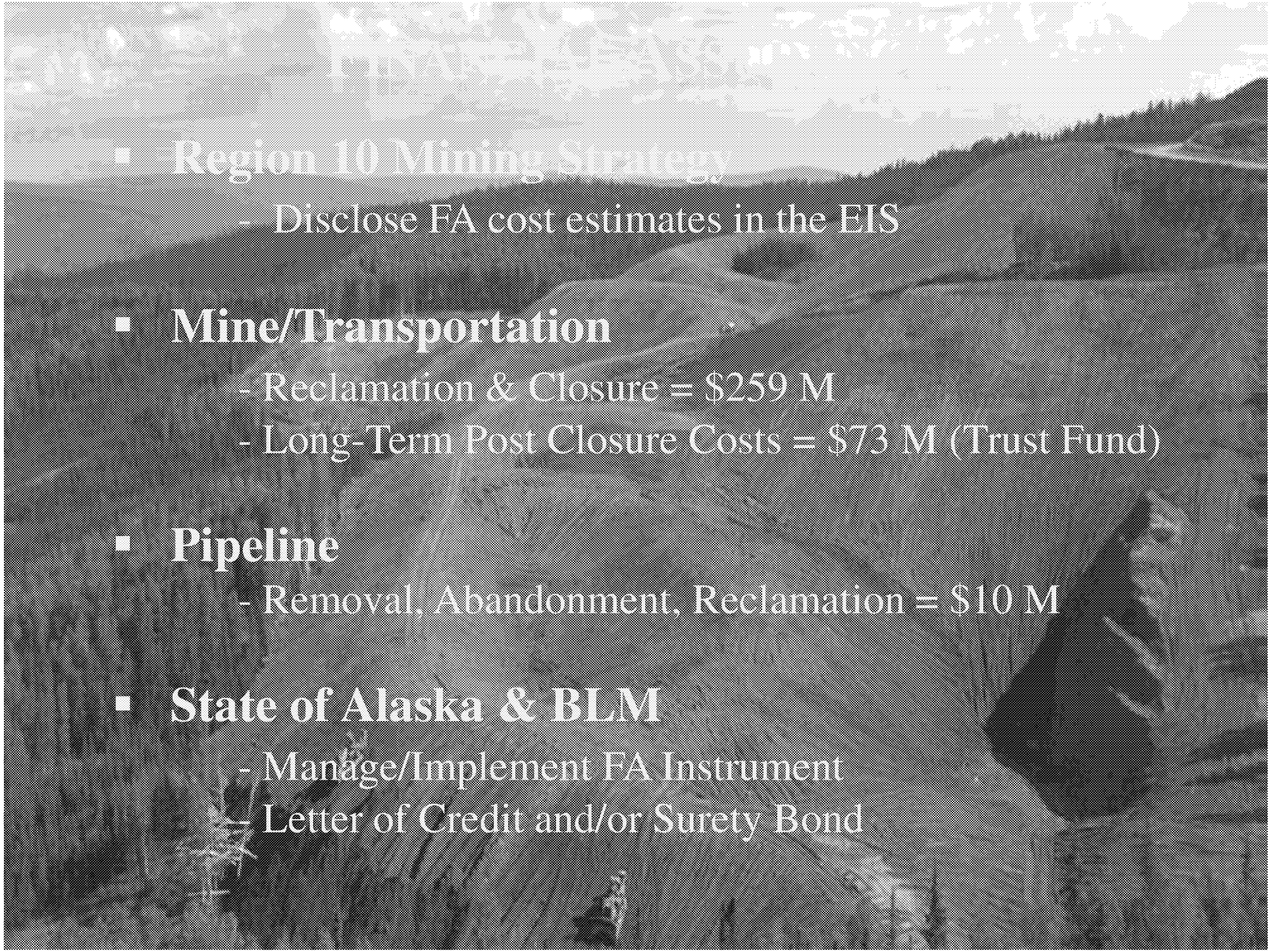
- 68 annual barge trips ⟶ 122 (avg.)/190 (peak)
- Environmental Effects – wakes and propeller wash
  - Shoreline Erosion (0.01 to 0.21 acres/mile/year)
  - River bed scour, sedimentation, and turbidity
  - Habitat loss and degradation
  - Disturbance/mortality – fish & eggs
- King Salmon fishing closures
- Conflicts – subsistence/commercial fishing
- Displace small vessels
- Barge Stranding – shallower areas upriver
- Spill Risk – diesel fuel, cyanide, etc.

Wetlands Compensatory Mitigation

- Total scale of impacts is unprecedented, but presuming no significant degradation.
- Most of American and Anaconda creeks would be eliminated, potentially significant impacts to Crooked Creek flow.

Project Components	Wetland Impacts (acres) Construction		River/Stream (miles)
	Direct	Indirect	
Mine	5,489 (61%)	1,432	42
Infrastructure	195 (23%)	1,014	2
Pipeline	2,072 (36%)	NA	29
Total:	7,756 (48%)	2,446 (15%)	73

- Wetland Functional Assessment will be used to calculate debits and credits. A 2:1 mitigation ratio applied to the direct impacts would be over 15,000 debits, would require 20,000 acres to offset. Scale of compensation equivalent to project.
- Calista Corporation proposed a mitigation bank that would preserve 20,000 acres. The District did not accept their initial proposal.
- Compensation workshop summer 2015. Mitigation Plan won't be developed until after FEIS issued. Compensation options should be analyzed in EIS.



- **Region 10 Mining Strategy**
  - Disclose FA cost estimates in the EIS
- **Mine/Transportation**
  - Reclamation & Closure = $259 M
  - Long-Term Post Closure Costs = $73 M (Trust Fund)
- **Pipeline**
  - Removal, Abandonment, Reclamation = $10 M
- **State of Alaska & BLM**
  - Manage/Implement FA Instrument
  - Letter of Credit and/or Surety Bond

Financial Assurance

Alaska Mines

Operation	*F.A. Mechanism*	*Total Bond ($ Millions)*
Greens Creek Mine	Surety Bond-- USFS	$30.5 Currently being updated
Red Dog Mine	Letter of Credit	$305.2
Fort Knox Mine	Letter of Credit	$65.8 Currently being updated
True North Mine	Letter of Credit	$3.1
Kensington Project	Surety Bond-- USFS	$28.7
Rock Creek Mine	Letter of Credit	$13.5
Pogo Mine and Road	Letter of Credit	$57.1
Nixon Fork Mine	Surety Bond-- BLM	$6.0
Niblack Project	Letter of Credit	$1.2

Source: Presentation by SOA: Alaska Mine Permitting Process Financial Assurance (January 29, 2014).

EIS SCHEDULE

Preliminary Draft EIS	Apr to Jun 2015
Workshop – Mitigation Measures	Jul 15 – 16, 2015
Notice of Availability DEIS	Late Oct 2015 to Mar 2016
DEIS - Public Meetings	Mid-Dec through Mar 2016
Preliminary Final EIS	Late 2016
Final EIS	Early 2017

DONLIN GOLD PROJECT

Questions?